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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,767	11/24/2003	Jack A. Smith	090936.0529	4914

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BAKER BOTTS L.L.P.  
PATENT DEPARTMENT  
98 SAN JACINTO BLVD., SUITE 1500  
AUSTIN, TX 78701-4039

EXAMINER
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DWIVEDI, VIKANSHA S

ART UNIT	PAPER NUMBER
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3746

DATE MAILED: 06/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/720,767	<b>Applicant(s)</b> SMITH ET AL.	
	<b>Examiner</b> Vikansha S. Dwivedi	<b>Art Unit</b> 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 3-16, 22-25, 27 and 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 17-21, 26 and 29-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/24/2003
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Applicant's election without traverse of Claims 2 and 21 in the reply filed on February 21, 2006 is acknowledged.

Claim 3-16, 22-25, 27 and 28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on February 21, 2006.

### *Specification*

The disclosure is objected to because of the following informalities:

The use of term "load step" is highly ambiguous and it appears highly arbitrary.

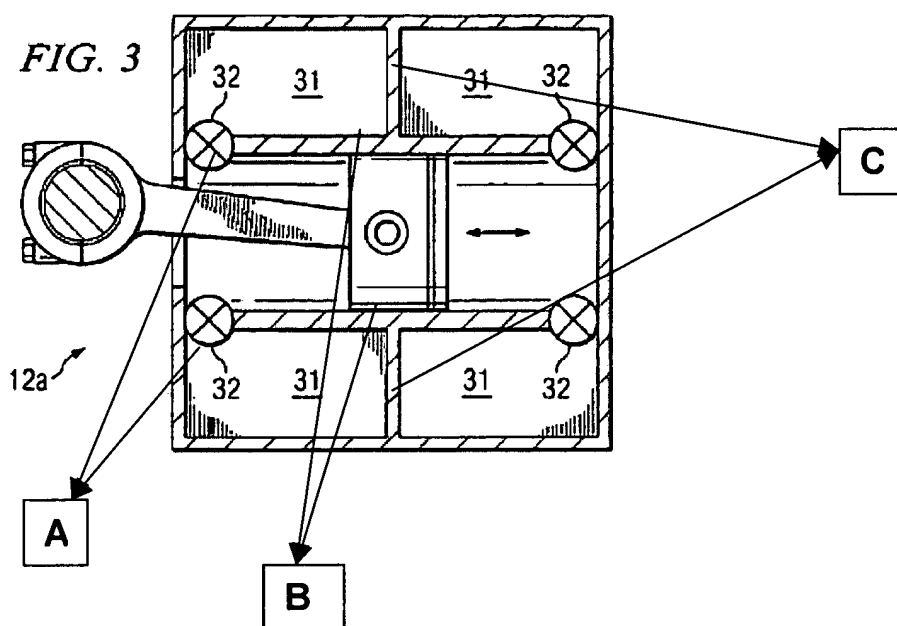
On page 3, under Summary of the invention and on page 5 under detailed description of the invention, the applicant talks about the compressor's output being controlled by specifying "load steps" (lines 5 and 6, lines 23 and 24 respectively), Applicant's arbitrary use of specifying the load pockets should be clarified.

Under detailed description of the invention on Page 7 the applicant uses numeral 31 to define load pockets and cylinder. Appropriate correction is required.

For the purpose of examination examiner is considering numeral 31 to define load pockets as shown in figure 3. It is not clear from the disclosure how the load pockets (31) change the compression ratio of the compressor. Further the use of the term discrete load is ambiguous.

### ***Drawings***

The drawings are objected to because it is not clear how are valves (32) closer to the cam (As seen in figure 3 towards the left hand side) affect the unloading. It seems from the drawing that only two valves (32) that are located on the extreme right will facilitate unloading the compressor, it seems that if the set of valve A as indicated below will be useful in unloading if they were located at position B or C.



Applicant is suggested to either provide an explanation for the current position of the valves and how they affect the unloading or provide corrected drawing. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be

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canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1, 21, 31 and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Since the drawings do not illustrate the valves in a manner that would create a properly unloaded compressor (for the left load pockets 31), one of ordinary skill in the art is not properly taught how to make and use the claimed invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1, 21, 31 and 32 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the load pockets. A load step cannot exist without load pockets, and applicant has not positively claimed any load pockets which are able to change the number of load steps.

Claim 1, 31 and 32 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The use of term "whose" in Claims 1, 31 and 32 is confusing and fails to point out if the term is being used with respect to the internal combustion engine or the gas compressor.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, 2, 19, 21, 26, 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gagnon (U.S. Patent number 4,496,286) in view of S.B. Redfield (U.S. Patent number 1,616,988)

Gagnon discloses a system and method for controlling an internal combustion engine (22), a gas compressor (21), and a controller (44). The controller receives compressor operating values of compressor suction pressure (30) and discharge pressure (29) (Also Shown in Figure 1). Gagnon does not disclose varying "load steps". Redfield teaches varying load steps by selectively controlling the load. (Page 2, lines 26-37 and Figure 1). At the time of invention it would have been obvious to one of ordinary skill in the art to modify Gagnon in view of Redfield to have a lading/unloading system that is effective, responsive and reliable as it changes the capacity smoothly to achieve a smooth control.

Claim 17, 18 and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Gagnon (U.S. Patent number 4,496,286) in view of S.B. Redfield (U.S. Patent number 1,616,988) and further in view of Marshall et al. (U.S. Patent number 5,997,259)

Gagnon in view of Redfield discloses the invention substantially as claimed by the applicant. Gagnon has a gas fueled engine and where the pilot fuel is injected into the pre chamber (Fuel Supply system, Column 5 line 42). Gagnon does not specifically identify the pilot injector although it is believed inherently present as part of the fuel

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delivery system. Alternately, Marshall discloses a diesel engine with a fuel injector (23, Column 4, lines 41-44) for enhanced fuel distribution. Marshall also provides his engine arranged has advantages and thus provide motivation for modifications (Column 4 and 5). At the time of invention it would have been obvious to one of ordinary skill in the art to modify the teachings of Gagnon in view of Marshall, by using a fuel injector to inject the pilot fuel of Gagnon, in order to enhance the distribution of the pilot fuel.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikansha S. Dwivedi whose telephone number is 571-272-7834. The examiner can normally be reached on M-F, 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on 571-272-4444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

VSD

  
**TAE JUN KIM**  
**PRIMARY EXAMINER**